

## **Overview of Washington State Gasoline Prices**

### ***Comparing recent and historical fuel prices***

Recent press releases highlight that gasoline or diesel prices have reached record prices. Expressed in nominal dollars (dollars of any particular year) this is true, but a more reasonable way to compare fuel costs in different time periods is to express the costs in constant dollars: an inflation index adjustment is applied to make dollars from a previous period equivalent to current dollars. Adjusted for inflation, historical gasoline prices in Washington peaked in 1981, when prices were significantly higher than today. Expressed in 2005 dollars a gallon of gasoline in 1981 would cost about \$3 per gallon. After the oil crisis in the late 1970's and early 1980's, average gasoline prices generally declined and by 1998 reached an all time low of about \$1.25 per gallon in 2005 dollars. In 1970, a gallon of gasoline would cost about \$1.50 in 2005 dollars. Unless otherwise noted, prices in the rest of this report are in nominal dollars and are for Washington State. For price comparisons over a time period of a few years, using nominal dollars is usually sufficient.

### ***Recent price trends***

Gasoline and diesel prices are not regulated and vary depending on both global and regional market conditions and supply and demand fundamentals. After declining to very low levels of less than one dollar per gallon during the winter of 1998-99, gasoline and diesel prices spiked to about \$1.68 per gallon on a national basis during June of 2000 – prices were slightly higher on the west coast. This price spike occurred in the early summer when demand for motor vehicle fuel was highest – typically 7 to 9 percent higher than average demand during the winter months. Additional factors that contributed to the price spike were the booming economy, record levels of sports utility vehicles (SUVs) and truck sales, several refinery and pipeline accidents in California and the Midwest, and the Organization of Petroleum Exporting Countries (OPEC) reestablishing limited control over its production quota goals and world crude oil price. This was also the first sign that world demand and supply for crude oil were in approximate balance – something that hadn't occurred since 1982. Fuel prices declined sharply as the recession began in late 2000, and were relatively low and stable in 2001 and 2002.

Prices for gasoline and diesel began to rise again in 2003, with the a price spike occurring in March just before the U.S. invasion of Iraq, and the second price spike in late August, due primarily to a late surge in demand related to summer travel. Crude oil prices increased steadily from the middle of 2003 through 2004 primarily the result of strong global demand growth<sup>1</sup>. Transportation fuel prices peaked again during the summer of 2004 as global crude oil demand tested the limits of global supply<sup>2</sup>. Prices declined during the fall of 2004 and early winter months of 2005, but began to increase fairly rapidly during the spring and summer of 2005, and have recently reached record levels (nominal dollars) of \$2.65 and \$2.85 per gallon for gasoline and diesel respectively.

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<sup>1</sup> Demand growth was particularly strong in China, India and the United States due to strong economic growth in these countries.

<sup>2</sup> According to the Dept. of Energy recent global surplus production capacity has been reduced to about 2 percent, most of it in Saudi Arabia and generally of lower quality.

## ***Gasoline price volatility***

Several factors appear to be driving the recent volatility in the gasoline and diesel markets:

1. High crude oil prices played a major role in most of the recent fuel price spikes. Crude oil prices have been driven by fear of war, terrorism, civil unrest and worker strikes, and by rapidly increasing world crude oil demand, particularly in Asian countries. In addition, because world crude oil trading is conducted in U.S. dollars, the weakening U.S. currency has encouraged OPEC to unofficially adjust upward its crude oil price window on which it bases oil production targets.
2. US crude oil demand and imports were at record levels during the summers of 2003, 2004 and most likely in 2005. Increasing population, more vehicles, and the continuing popularity of less fuel efficient SUVs and trucks are the factors driving growing U.S. demand for petroleum in the transportation sector.
3. U.S. refineries are producing near their limit, running at 95% capacity for much of the year, and cannot meet national demand. Consequently, increasing quantities of refined products, such as gasoline and diesel, are being imported from other countries: U.S. gasoline imports have risen nearly fourfold, from 3.4 billion gallons in 1983 to 12.9 billion gallons in 2003. With refineries running near capacity during the spring and summer, plus the advanced age of many refineries, accidents now occur frequently. The loss of production from a single large refinery, even for only a few days, can cause prices to increase regionally.
4. US inventories of crude oil, gasoline and diesel were low during 2004. Current inventory levels appear sufficient for the winter heating oil season.

## ***Component Costs of Gasoline***

There are four main components of gasoline cost:

1. Crude oil cost
2. State and Federal Taxes
3. Refinery costs and profit margin
4. Dealer costs and profit margin.

Crude oil cost is the price paid for a barrel of crude oil on the international market divided by 42 gallons in a barrel. This will give the price of crude oil per each gallon of gasoline. As we have seen this year, this is often the most volatile price of the fuel. Crude oil is traded as a commodity, and as the price goes up, prices for gasoline can change very quickly. When prices for crude come down, the price for gasoline typically comes down -- but very slowly. This is typical for most commodities.

For every one dollar increase of the cost of a barrel of crude oil, there is an average increase of about 2.5-cents per gallon of gasoline. So, a \$10 increase per barrel in crude prices means a 25-cent increase at the pump. This year's \$26.50 increase in crude oil from January 3 to August 8 means a 66-cent a gallon increase in gasoline prices. This additional cost will not go away until crude oil prices start to come down.

Taxes for gasoline in Washington are: 18.4 cents per gallon for federal excise taxes; 31 cents per gallon for state excise taxes; plus local fuel tax options. . Diesel fuel taxes are

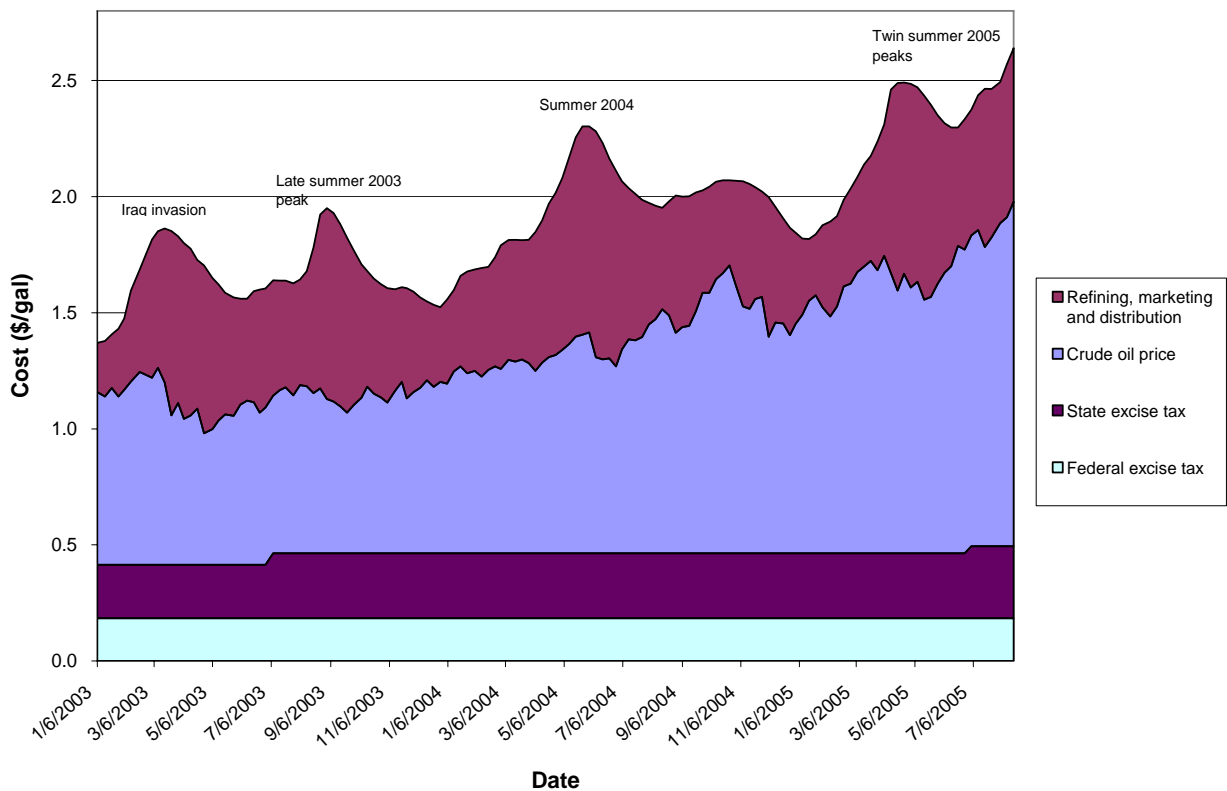
slightly higher than gasoline taxes. About the only fuel price component that doesn't change much over time are taxes.

Dealer costs and profit margin (or the amount that the dealer charges for the fuel) includes all costs associated with the distribution and retailing of motor fuel, including but not limited to: franchise fees and/or rents, wages, utilities, supplies, equipment maintenance, environmental fees, licenses, permitting fees, credit card fees, insurance, depreciation, advertising and profit. Dealer margin normally lags changes in the wholesale price of gasoline.

Refinery costs and profit margin (or the prices charged by the oil companies) must cover all costs associated with production, distribution, and acquisition of gasoline. The refinery costs and profit margin covers all costs associated with refining and terminal operation: crude oil processing, oxygenate/ethanol, product shipment and storage, oil spill fees, depreciation, brand advertising, purchases of gasoline to cover refinery shortages and profits. The refinery margin generally goes up in the summer when demand for transportation fuel is highest.

Figure 1 illustrates the weekly average component prices for regular gasoline in Washington State from January 2003 through August 2005. We do not have information on refining margins (refining costs and profits) or marketing and distribution margins in Washington and so estimated the combined value of these two components by taking the difference retail price and the combined cost of crude oil and state and federal taxes.

**Fig. 1: Cost Components of Washington State Gasoline: 2003-05**



As figure 1 indicates most of the recent fuel price increase is attributable to the rising cost of crude oil. Refining, marketing and distribution margins have increased, particularly if compared to margins in 2001 and 2002 (not shown). The cost of crude oil currently comprises about 56 percent of the total cost of a gallon of gasoline. The state tax on gasoline was increased by 5 cents per gallon in 2003 and 3 cents per gallon in 2005: state and federal gasoline taxes currently make up nearly 20 percent of total cost. Most notable is the large swings in refining and marketing and distribution margins during the late spring and summer months due to high demand and limited extra refining capacity on the west coast: these combined margins currently are about 24 percent of total fuel costs.

Figure 2 illustrates the weekly average component prices for regular gasoline in California from January 2003 through August 2005. California does track information on refining margins and marketing and distribution margins, and so these more detailed costs are included in Figure 2.

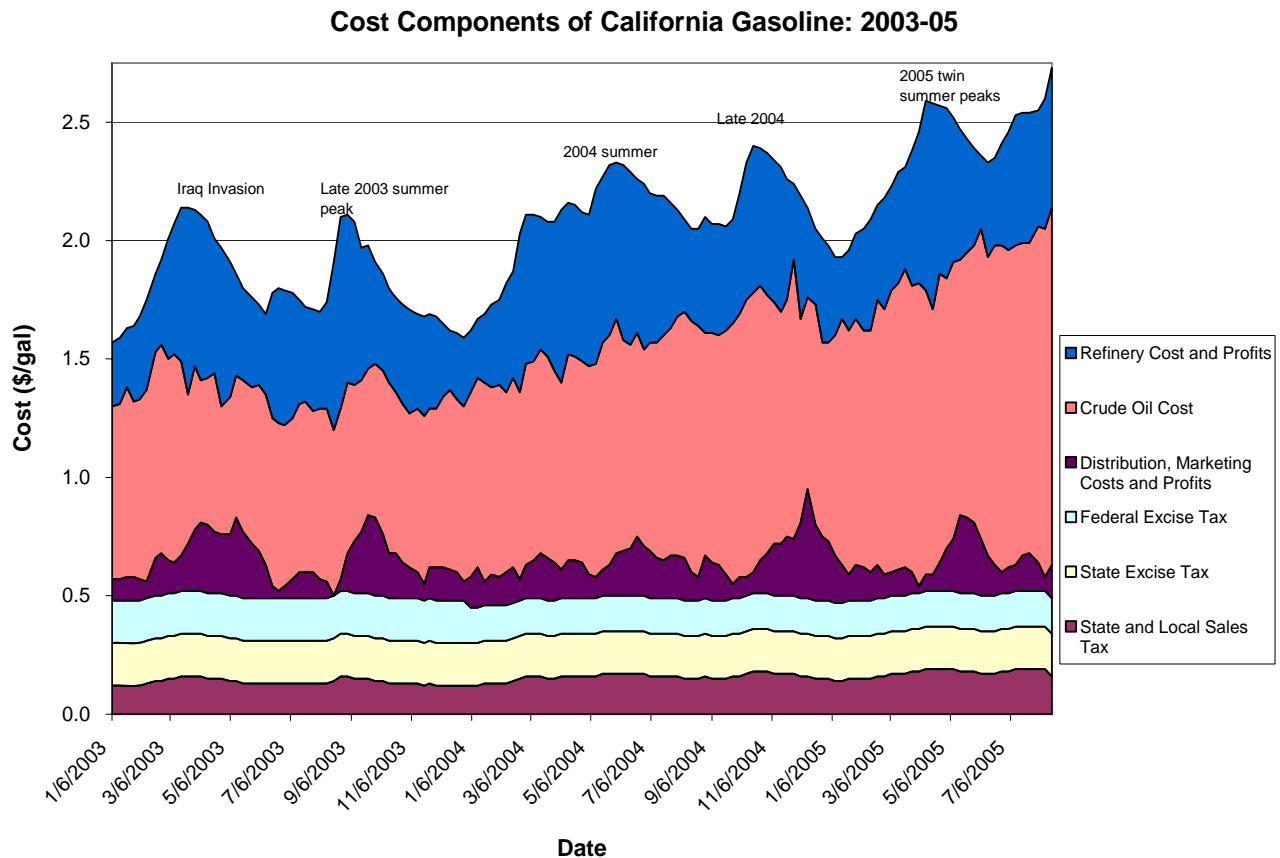


Figure 2 is similar to figure 1, but exhibits a bit more price volatility and illustrates how declines in marketing and distribution margins generally lag declines in refinery margins. This is thought to be due to an aspect of buyer psychology, where buyers don't shop as hard for low fuel prices once prices have begun to decline, thus allowing retailers to lower pump prices in a slow measured manner.